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10/599,482

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EXAMINER

SHEEHAN, JOHN P

ART UNIT

PAPER NUMBER

1793

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DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

|                              |                                      |  |  |
|------------------------------|--------------------------------------|--|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/599,482 | <b>Applicant(s)</b><br>SHINTANI ET AL. |  |
|                              | <b>Examiner</b><br>John P. Sheehan   | <b>Art Unit</b><br>1793                |  |

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. ____.                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date ____.  | 6) <input type="checkbox"/> Other: ____.                          |

## **DETAILED ACTION**

### ***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Specification***

2. The disclosure is objected to because of the following informalities:
  - I. Throughout the specification, the word, "chill" is used (for example, see, page 6, lines 3 and 14; page 7, lines 2 and 19 and page 14, line 9). However, the meaning of the word "chill" in the context of the specification is not clear.
  - II. Page 17, lines 21 to 27. are objected to in that in line 23, applicants are describing the nucleation inhibiting portions as convex (line 23) whereas the entire specification, with the exception of this section of the specification describes the nucleation inhibiting portions as concave (for example, page 18, lines 1 to 6 and original claim 6).

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1 to 13 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

I. In claim 1, line 14 and claim 9, line 7, meaning of the term, "chill" is not clear. What is "chill" in the context of an alloy flake?

II. In claim 1, line 9, the meaning of the phrase, "the balance M including iron" is not clear. M does not have an antecedent and is not defined in the claims. Thus, the meaning of M is not clear. It is not clear what is or is not encompassed by M. For example, is M limited to metal elements or does M include any composition of matter? Further, does the phrase "including iron" mean that the claimed alloy melt always contains iron or does this phrase merely mean that material possibilities encompassed by M includes at least iron but that iron is not necessarily always present in the alloy melt composition?

### ***Claim Interpretation***

5. In claim 1, the language, "A method for producing alloy flakes for a rare earth sintered magnet of a structure containing an R-rich region and dendrites of an  $R_2Fe_{14}B$  phase with a dendrite content of not less than 80 vol%", appears in the preamble and describes the purpose of the claimed process. A preamble is generally not accorded any patentable weight where, as in the instant case, it merely recites the purpose of a

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process and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). In view of this, the phrase, "A method for producing alloy flakes for a rare earth sintered magnet of a structure containing an R-rich region and dendrites of an  $R_2Fe_{14}B$  phase with a dendrite content of not less than 80 vol%", has not been accorded any patentable weight. Further, the language, "containing an R-rich region and dendrites of an  $R_2Fe_{14}B$  phase with a dendrite content of not less than 80 vol%", has been interpreted as directed to the intended sintered magnet and not the flakes produced by the recited process.

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1 to 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arai et al. (Arai '491, US Patent Application Publication No. 2004/0245491, cited by the Examiner).

Arai '491 teaches a method for producing rare earth-iron-boron alloy powder (paragraph [0002]). Arai '491 teaches that the powder is made by preparing a melt of

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the R-Fe-B alloy and supplying the alloy melt to a cooling roll (paragraph [0013], Figure 1 and paragraph [0018]). Arai '491 teaches that the cooling roll has ridges and grooves (for example, see Figures 1, 2, 3) which are encompassed by "linear nucleation inhibiting portions" and "nucleating portions" as recited the claims. particularly claim 3 which recites concave and convex areas on the cooling roll. The grooves taught by Arai '491 preferably have a width of 0.5 to 90 microns (paragraph [0025]) and a preferred depth of 0.5 to 20 microns ([0026]), however, the teachings of a reference are never limited to the preferred embodiments. Further, Arai '491's preferred groove width closely approximates the width of "more than 100  $\mu\text{m}$  recited in claim 1. Arai '491 teaches ridges having a width of 0.5 to 95  $\mu\text{m}$  (paragraph [0023] which encompasses the convex width recited in claims 2 and 3. Arai '491 teaches the concave and convex portions of the cooling can intersect forming dots (see Figures 15 and 19) as recited in claim 3. Arai '491 teaches that the cooling roll can be made of copper (paragraphs [0080] and [0081]) which is encompassed by applicants' claim 4. Arai '491 teaches that the cast alloy has a preferred thickness of 8 to 50  $\mu\text{m}$  (0.008 to 0.05 mm) (paragraph [0036]) which overlaps the thickness recited in claim 8. Arai '491 teaches that the alloy melt does not come into contact with the bottom of the grooves (concaves) (Figure 5) as recited in applicants' claim 7.

The claims and Arai '491 differ in that Arai '491 does not teach the groove width and depth recited in the instant claims, Arai '491 teaches a preferred width of 0.5 to 90  $\mu\text{m}$  whereas applicants' claims 1 recites a minimum width of 100  $\mu\text{m}$  and a preferred

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depth of 0.5 to 20 microns whereas applicants' claim 6 recites a depth of greater than 50 microns.

However, one of ordinary skill in the art at the time the invention was made would have considered the invention to have been obvious because Arai '491, except for disclosing a preferred groove width of 0.5 to 90  $\mu\text{m}$  and a preferred groove depth of 0.5 to 20  $\mu\text{m}$  is silent with to the groove width and depth . In view of the fact that the teachings of a reference are not limited to the preferred embodiments but rather include the nonpreferred embodiments and even embodiments that are unsatisfactory for the intended purpose;

"All the disclosures in a reference must be evaluated for what they fairly teach one of ordinary skill in the art. ...this court...affirmed rejections based on art phrased in terms of a non-preferred embodiment or as being unsatisfactory for the intended purpose." In re Boe, 148 USPQ 507, 510.

Arai '491 is considered to teach a groove width and groove depth other than the preferred groove width of 0.5 to 90  $\mu\text{m}$  and groove depth of 0.5 to 20  $\mu\text{m}$  including groove widths of greater than 90  $\mu\text{m}$ , including groove widths of greater than 100  $\mu\text{m}$  as recited in applicants' claims 1 and groove depths greater than 20  $\mu\text{m}$ , as recited in applicants' claims 6 to 8. Further, Arai '491's preferred upper groove width of 90  $\mu\text{m}$  closely approximates applicants' claimed lower limit of 100  $\mu\text{m}$ , therefore one of ordinary skill in the art would have expected that this the similar groove widths would have the same result. See *in re Peterson*, 65 USPQ2d 1379, 1382, citing *Titanium Metals Corp. v. Banner*, 227 USPQ 773, 779 and MPEP 2144.05 I.

"a *prima facie* case of obviousness exists where the

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claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties. *Titanium Metals Corp. of America v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985) (Court held as proper a rejection of a claim directed to an alloy of "having 0.8% nickel, 0.3% molybdenum, up to 0.1% iron, balance titanium" as obvious over a reference disclosing alloys of 0.75% nickel, 0.25% molybdenum, balance titanium and 0.94% nickel, 0.31% molybdenum, balance titanium.).

8. Claims 9 to 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sasaki (Sasaki '892, US Patent Application Publication No. 2005/0028892, cited by the Examiner).

Sasaki '892 teaches making an  $R_2Fe_{14}B$  alloy flake containing less than 20 % R-rich phase (paragraph [0204]) and a minimum of  $\alpha$ -Fe (for example, paragraphs [0111] and [0034]). Sasaki '892 teaches that the alloy flake is made using a raised/dented (concave/convex) cooling roller surface (for example, see paragraph [0078]) as disclosed by applicants. Regarding the  $\alpha$ -Fe content Sasaki '892 teaches that  $\alpha$ -Fe is present in an amount of less than 1% (paragraph [0155]) which is encompassed by applicants' claim 12. Sasaki '892 teaches that the grain size of the alloy is less than 50 microns (paragraph [0246]) which overlaps the grain size of less than 40 microns recited in applicants' claim 9. Sasaki '892 teaches a R-rich phase spacing of 3 to 8 microns (paragraph [0209]) which is encompassed by applicants' claims 10 and 11. Sasaki '892 teaches a sintered product that is made from the disclosed alloy flake (see Abstract) as recited in applicants' claim 13.

The claims and Sasaki '892 differ in that Sasaki '892 does not teach the exact that the  $R_2Fe_{14}B$  is present in an amount of 80% or more as recited in applicants' claim



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9 and is silent with respect to the formula  $(6r + 2.74x - 65)$  recited in applicants' claim 11.

However one of ordinary skill in the art at the time the invention was made would have considered the invention to have been obvious because in view of the fact that Sasaki '892's alloy contains less than 20% R-rich phase and less than 1 %  $\alpha$ -Fe, then balance Sasaki '892 alloy would be expected to contain not lower than 80 %  $R_2Fe_{14}B$ . Regarding the formula  $(6r + 2.74x - 65)$  recited in applicants' claim 11, because the interval (r) between the R-rich regions taught by Sasaki '892 is encompassed by applicants' claims and the applicants' claims are not limited as to the R content (x) of the claimed alloy Sasaki '892's alloy would be expected to satisfy the formula.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John P. Sheehan whose telephone number is (571) 272-1249. The examiner can normally be reached on T-F (7:30-5:00) Second Monday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/John P. Sheehan/  
Primary Examiner  
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JPS